

AMENDMENTS TO THE CLAIMS

Applicant submits below a complete listing of the current claims, including marked-up claims with insertions indicated by underlining and deletions indicated by strikeouts and/or double bracketing. This listing of claims replaces all prior versions, and listings, of claims in the application:

Listing of the Claims

1. (Currently amended) A method of operating a plurality of computers to implement a distributed method for assigning designations to endpoints for use in a peer-to-peer collaboration system having a plurality of members that share a telespace and exchange data change requests, the method comprising:

(a) assigning operating at least two of the plurality of computers used by inviting members to independently assign [[a]] unique designation to each endpoint of each member of designations to endpoints of members invited to join the telespace, each designation of [[a]] an endpoint of an invited member comprising:

(a) a value indicative of the order in which the invited member was invited by a respective inviting member to join joined the telespace; and

(b) for each member invited to join by another telespace member comprising the inviting member, assigning a unique endpoint designation indicative of the respective inviting member.

2. (Currently amended) The method of claim 1 wherein [[step]] (a) comprises assigning a unique numeral designation to for each endpoint.

3. (Currently amended) The method of claim 2 wherein [[step]] (b) comprises assigning a unique serial numeral designation to for each endpoint, wherein the serial numeral designation comprises a series of numbers including the numeral designation of the respective inviting member.

4. (Original) The method of claim 1, wherein a plurality of the designations of different endpoints each indicate a chain of inviting members.

5. (Original) The method of claim 1, wherein endpoint designations comprise a number of orders, including a first order designating a founding member of the telepace, and at least a second order designating a member invited to join the telepace by the founding member.

6. (Currently amended) The method of claim 1,
wherein ~~step (a)~~the method comprises:

[[a1]] upon creation of the telepace, an endpoint corresponding to a founding telepace member assigning itself a unique designation comprising a first order digit; and
~~wherein step (b) comprises:~~

~~(b1)~~ subsequent to creation of the telepace, assigning, by the founding member, each of a plurality of endpoints corresponding to a new member of the telepace invited into the telepace by the founding member a unique designation comprising the first order digit of the founding telepace member, and a second order digit, the second order digits of the designations of endpoints of the new members being in a sequential order indicating the order in which the new members joined the telepace.

7. (Currently amended) The method of claim 6 further comprising:
[[c)] inserting endpoint designations into data change requests.

8. (Currently amended) The method of claim 7 further comprising:
[[d)] using the endpoint designations in data change requests to resolve a dependency collision between two data requests.

9. (Currently amended) The method of claim 8 wherein ~~step (d)~~using the end point designations in data change requests to resolve a dependency collision comprises resolving a dependency collision while maintaining total ordering.

10. (Original) The method of claim 9 wherein ~~step (d)~~ using the end point designations in data change requests to resolve a dependency collision comprises:

[(d1)] comparing endpoint digits on an order-by-order basis; and

[(d2)] scheduling data change requests so that data change requests with the lowest endpoint digits in the lowest orders are scheduled for processing first.

11. (Currently amended) The method of claim 1 further comprising:

[(c)] inserting endpoint designations into data change requests.

12. (Currently amended) The method of claim 11 further comprising:

[(d)] using the endpoint designations in data change requests to resolve a dependency collision between two data requests.

13. (Currently amended) The method of claim 12 wherein ~~step (d)~~ using the end point designations in data change requests to resolve a dependency collision comprises resolving a dependency collision while maintaining total ordering.

14. (Canceled)

15. (Currently amended) The method of claim 1 wherein ~~step (b) comprises, for each member invited to join the telespace by another telespace member, the inviting member, assigning a each unique endpoint designation that is unique within the telespace.~~

16. (Currently amended) The method of claim 1, wherein ~~step (b) comprises, for each member invited to join the telespace by another telespace member, the inviting member assigning a each unique endpoint designation that is unique within the collaboration system.~~

17. (Canceled)

18. (Currently amended) A distributed apparatus for assigning designations to endpoints for use in a peer-to-peer collaboration system having a plurality of members that share a telespace and exchange data change requests, the apparatus comprising:

means for forming the telespace by inviting members to join the telespace; and

means for assigning a unique designation to each endpoint of each member of the telespace, each designation of a member comprising a portion indicative of the order in which the member joined the telespace; ~~and means operable for each member invited to join by another telespace member comprising the inviting member, for assigning a unique invited member endpoint designation and a portion~~ indicative of ~~[[the]]~~ an inviting member inviting the member to join the telespace.

19. (Original) The apparatus of claim 18 wherein the means for assigning endpoint designations for each member comprises means for assigning a unique numeral designation to each endpoint.

20. (Currently amended) The apparatus of claim 19 wherein the means for assigning ~~invited member endpoint designations~~ the unique designation comprises means for assigning a unique serial numeral designation to each endpoint wherein the serial numeral designation comprises a series of numbers including the numeral designation of the inviting member.

21. (Original) The apparatus of claim 18, wherein a plurality of the designations of different endpoints each indicate a chain of inviting members.

22. (Currently amended) The apparatus of claim 18, wherein ~~endpoint~~ the unique designations ~~and invited member endpoint designations~~ comprise a number of orders, including a first order designating a founding member of the telespace, and at least a second order designating a member invited to join the telespace by the founding member.

23. (Currently amended) The apparatus of claim 18, wherein the means for assigning ~~endpoint designations~~ the unique designation comprises:

means operable upon creation of the telepace, for assigning to an endpoint corresponding to a founding telepace member a unique designation comprising a first order digit; and

wherein the means for assigning invited member endpoint designations comprises: means operable subsequent to creation of the telepace and by the founding member, for assigning each of a plurality of endpoints corresponding to a new member of the telepace invited into the telepace by the founding member a unique designation comprising the first order digit of the founding telepace member, and a second order digit, the second order digits of the designations of endpoints of the new members being in a sequential order indicating the order in which the new members joined the telepace.

24. (Original) The apparatus of claim 23 further comprising means for inserting endpoint designations into data change requests.

25. (Original) The apparatus of claim 24 further comprising means for using the endpoint designations in data change requests to resolve a dependency collision between two data requests.

26. (Original) The apparatus of claim 25 wherein the means for resolving a dependency collision comprises means for resolving a dependency collision while maintaining total ordering.

27. (Original) The apparatus of claim 26 wherein the means for resolving a dependency collision comprises:

means for comparing endpoint digits on an order-by-order basis; and
means scheduling data change requests so that data change requests with the lowest endpoint digits in the lowest orders are scheduled for processing first.

28. (Original) The apparatus of claim 18 further comprising means for inserting endpoint designations into data change requests.

29. (Original) The apparatus of claim 28 further comprising means for using the endpoint designations in data change requests to resolve a dependency collision between two data requests.

30. (Currently amended) The apparatus of claim 29 wherein the means for resolving a dependency collision comprises means for resolving a dependency collision while maintaining total ordering of the data change requests in each of a plurality of endpoints.

31. (Currently amended) The apparatus of claim 18, wherein the means for assigning ~~invited member endpoint designations~~ the unique designation comprises means operable by each of the inviting members for assigning a unique designation to each new telespace member that an inviting endpoint invites into the telespace.

32. (Currently amended) The apparatus of claim 18 wherein the means for assigning ~~invited member endpoint designations~~ the unique designation comprises, for each member invited to join the telespace by another telespace member, means in the inviting member for assigning a endpoint designation that is unique within the telespace.

33. (Currently amended) The apparatus of claim 18, wherein the means for assigning ~~invited member endpoint designations~~ the unique designation comprises, for each member invited to join the telespace by another telespace member, means operable by the inviting member for assigning a endpoint designation that is unique within the collaboration system.

34. (Currently amended) The apparatus of claim 18, wherein the means for assigning ~~endpoint designations~~ the unique designation comprises a pseudo-random number generator that generates each designation.

35-37. (Canceled)

38. (New) A computer readable storage medium comprising computer-executable instructions that, when executed by a processor, perform a method of operating a computer of an

invited member of a peer-to-peer collaboration system in which computers used by a plurality of members communicate changes to a shared telespace by transmitting change messages and the computers used by the plurality of members maintain a copy of the shared telespace by applying changes in the change messages, the method comprising:

- receiving an invitation for the invited member to join the shared telespace, the invitation being sent by an inviting member of the plurality of members having an inviting member endpoint designation;

- receiving from a computer of the inviting member an invited member endpoint designation for the invited member, the invited member endpoint designation having a hierarchical representation with a first portion identifying the inviting member endpoint designation and a second portion identifying when the invited member was invited to join the shared telespace relative to when the inviting member invited other members to join the shared telespace; and

- transmitting change messages indicating changes to the shared telespace, each change message comprising the invited member endpoint designation.

39. (New) The computer-readable storage media of claim 38, wherein the second portion of the invited member endpoint designation comprises a sequence number generated by the inviting member.

40. (New) The computer-readable storage medium of claim 38, wherein the method further comprises:

- inviting a second invited member to join the telespace; and

- providing to a computer of the second invited member a second invited member designation, the second invited member designation having a hierarchical representation comprising:

- a first portion identifying the inviting member endpoint designation;

- a second portion identifying when the invited member was invited to join the shared telespace relative to when the inviting member invited other members to join the telespace; and

a third portion identifying when the second invited member was invited to join the shared telepace relative to when the invited member invited other members to join the telepace.